Avocent

DSR™

Installer/User Guide

For models: DSR800 DSR1010 DSR2010 DSR4010

INSTRUCTIONS

This symbol is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

DANGEROUS VOLTAGE

This symbol is intended to alert the user to the presence of uninsulated dangerous voltage within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

POWER ON

This symbol indicates the principal on/off switch is in the on position.

POWER OFF

This symbol indicates the principal on/off switch is in the off position.

PROTECTIVE GROUNDING TERMINAL

This symbol indicates a terminal which must be connected to earth ground prior to making any other connections to the equipment.

DSR™

Installer/User Guide

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USA Notification

Warning: Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Canadian Notification

This digital apparatus does not exceed the Class A limits for radio noise emissions from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications.

Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de la classe A prescrites dans le Règlement sur le brouillage radioélectrique édicté par le Ministère des Communications du Canada.

Japanese Approvals

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這是甲類的資訊產品，在居住的環境中使用時，可能會造成射頻干擾，在這種情況下，使用者會被要求採取某些適當的對策

Korean Certification

Director General of Radio Research Laboratory, Ministry of Information and Communication, Republic of Korea Certificate of Information and Communication Equipment E-E011-02-2836 (A) and E-E011-03-2392 (A)

Agency Approvals

EN55022 Class A, EN55024, EN6200-3-2, EN6100-3-3, FCC15 Class A, VCCI Class A, IEC950, EN60950, UL 1950 third edition, CSA C22.2 No. 950

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1 Product Overview

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Chapter 1: Product Overview

Features and Benefits

Avocent's DSR™ appliances combine analog and digital technology to provide flexible, centralized control of data center servers. This solution provides enterprise customers with a significant reduction of cable volume, secure remote access and flexible server management from anywhere at anytime.

The DSR appliance consists of a rack mountable keyboard, video and mouse (KVM) switch configurable for analog (local) or digital (remote) connectivity. Each DSR model has Avocent Rack Interface (ARI) ports for connecting servers and serial devices via DSRIQ modules. Video resolution of 1280 x 1024 is supported for remote users of the DSR system. Enhanced video quality of up to 1600 x 1280 is available for the local user via the keyboard, video and mouse ports.

The DSR works over standard LAN connections. Users can access servers (or serial devices) across a 100BaseT Ethernet connection or directly through a local port on the DSR for remote KVM access and administration, depending on the model selected. The IP-based DSR appliance gives you flexible server management control from anywhere in the world.

Reduce cable bulk

With server densities continually increasing, cable bulk remains one of the major concerns of every network administrator. The DSR significantly reduces KVM cable volume in the rack by utilizing the innovative DSRIQ module and single CAT 5 cabling. This allows a higher server density while providing greater airflow and cooling capacity.

The built-in memory of the DSRIQ simplifies configuration by assigning and retaining unique server names or Electronic ID (EID) numbers for each attached server. This integrated intelligence enhances security and prevents unauthorized access to a server through cable manipulation. The DSRIQ module is powered directly from the server and provides Keep Alive functionality whether or not the DSR appliance is powered up.

The DSRIQ-SRL (serial) module is a DCE device that provides the primary interface between a serial device and a DSR appliance. It provides VT100 terminal emulation, break suppression and port history in a convenient module. The DSRIQ-SRL is compatible with the ARI port of a DSR system.

These DSRIQ modules eliminate the need for extra rack space or additional cables. The connection between the DSR system and DSRIQ modules is via industry standard UTP cabling.

Access the DSR via network connection

No special software or drivers are required on the attached, or host, computers. Users access the DSR appliance and all attached systems via Ethernet from a PC running the DSView ™ application residing on the user PC. User PCs can be located anywhere a valid network connection exists. The DSR appliance can be configured on a separate network from your data network, allowing access to your servers even if your applications network is down.

Simple point and click access to any server

When a user activates DSView, it will display a listing of all computers and serial devices to which the user has permission to access. When a user selects a computer from the list, the video of the selected computer is displayed in a session window. Multiple servers can be accessed by one user. Each additional computer's video will appear in a separate program window.

Create and manage user permissions with DES encrypted security

An administrator describes the configuration of computers attached to the DSR using an application called DSAdmin. Once the topology is described, the administrator then establishes which computers a user has permission to access. Usernames and passwords are derived from Windows NT ®, eliminating the need for redundant user databases. Once the topology is established, the DSAuth software manages the system's user permissioning. DSView polls the server running DSAuth for access permissions on power up and every time a switch is initiated for the most current permissions possible. A refresh is also available for immediate updates to a user's access profile. In addition to the permissioning function, DSAuth also stores pertinent information about attached devices in a database. Room location, rack location and computer type can all be stored for quick reference.

Access serial devices

If an Avocent CPS810 or CPS1610 appliance is attached to the DSR unit, operators can gain access to serial devices through the DSView software. When a user connects to the network using DSView, a listing of all computers and serial devices to which the user has permission to access displays. Selecting a serial device will initiate a Telnet session.

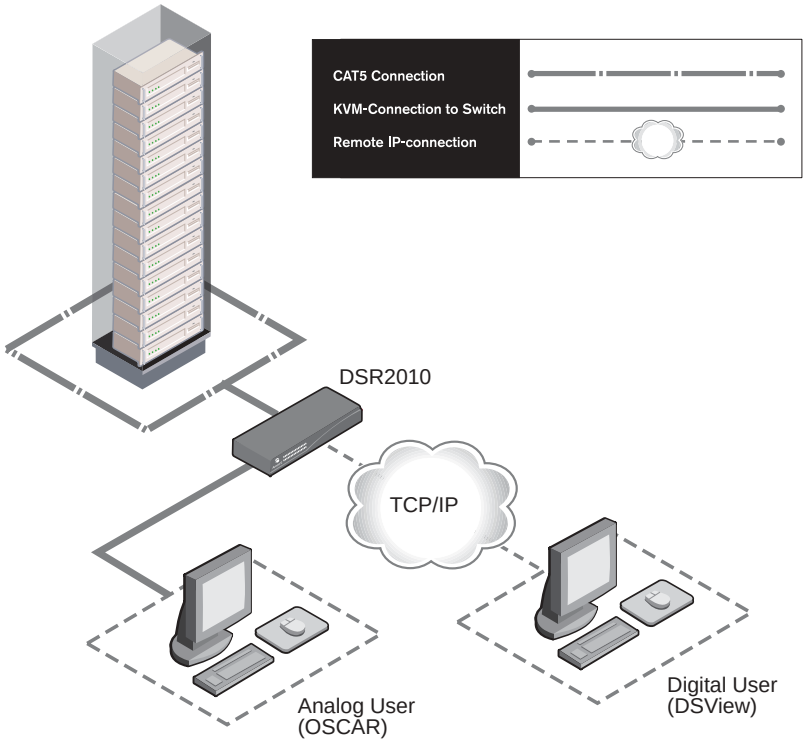
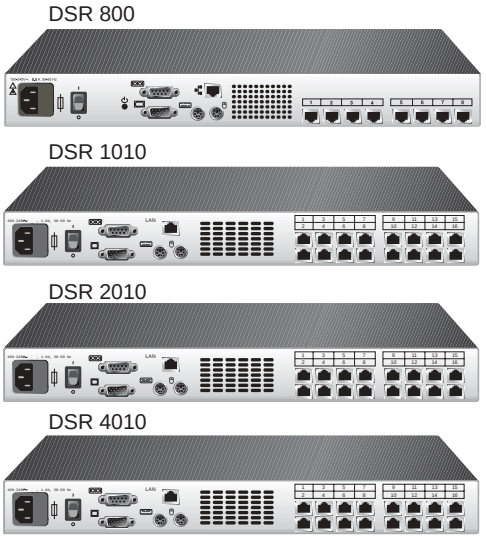


Figure 1.1: Example DSR Configuration



	Number of servers	Digital sessions/ output	Analog user
DSR 800	8	1	1
DSR 1010	16	1	1
DSR 2010	16	2	1
DSR 4010	16	4	1

Figure 1.2: DSR Model Comparison

Safety Precautions

To avoid potential video and/or keyboard problems when using Avocent products:

- If the building has 3- phase AC power, ensure that the computer and monitor are on the same phase. For best results, they should be on the same circuit.

To avoid potentially fatal shock hazard and possible damage to equipment, please observe the following precautions:

- Do not use a 2-wire power cord in any Avocent product con guration.
- Test AC outlets at the computer and monitor for proper polarity and grounding.
- Use only with grounded outlets at both the computer and monitor. When using a backup Uninterruptible Power Supply (UPS), power the computer, the monitor and the DSR appliance off the supply.

NOTE: The AC inlet is the main disconnect.

Rack mount safety considerations

- Elevated Ambient Temperature: If installed in a closed rack assembly, the operation temperature of the rack environment may be greater than room ambient. Use care not to exceed the rated maximum ambient temperature of the appliance.
- Reduced Air Flow: Installation of the equipment in a rack should be such that the amount of air ow required for safe operation of the equipment is not compromised.
- Mechanical Loading: Mounting of the equipment in the rack should be such that a hazardous condition is not achieved due to uneven mechanical loading.
- Circuit Overloading: Consideration should be given to the connection of the equipment to the supply circuit and the effect that overloading of circuits might have on overcurrent protection and supply wiring. Consider equipment nameplate ratings for maximum current.
- Reliable Earthing: Reliable earthing of rack mounted equipment should be maintained. Pay particular attention to supply connections other than direct connections to the branch circuit (for example, use of power strips).

2 Instal lation

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Chapter 2: Installation

The DSR system requires that the DSView, DSAdmin and DSAuth software be installed prior to use. DSView is the application that allows a user to view and control a server attached to the DSR system. DSAdmin is used to configure and maintain the system. DSAuth is a Windows NT or 2000 service used to prevent unauthorized access to the DSR system. More information on the DS Management Software suite can be found in your DSView Installer/ User Guide.

The DSR system uses Ethernet networking infrastructure and TCP/IP protocol to transmit keyboard, video and mouse information between operators and connected computers. Although 10BaseT Ethernet may be used, Avocent recommends a dedicated, switched 100BaseT network.

Getting Started

Before installing your DSR, refer to the following lists to ensure you have all items that shipped with the DSR as well as other items necessary for proper installation.

Supplied with the DSR

The following items are supplied with your DSR appliance:

- DSR appliance
- Local country power cord
- Rack mounting brackets
- Null modem cable
- DSR Installer/User Guide
- DSR Quick Install Guide

Additional items needed

The following are additional items needed to use your DSR appliance:

- One DSRIQ module per server or DSRIQ-SRL per serial device
- One CAT 5 patch cable per server or serial device (4-pair UTP, up to 10 meters)
- DS software

Verification of Ethernet/computer connections

DSR appliance

The front panel of the DSR features two LEDs describing the Ethernet connection. The top green LED is the *Link* indicator. It will illuminate when a valid connection to the network is established and blink when there is activity on the port. The lower amber LED, labeled *100M*, will indicate that you are communicating at the 100 Mb rate.

Additionally, there are two LEDs above each port number on the front of your appliance: one green and one amber. The green LED will illuminate when the attached system is powered. The amber LED will illuminate when that port is selected by the DSView Client.

DSRIQ modules

PS/2, Sun and USB DSRIQ modules are available for attaching computers to your DSR appliance.

The DSRIQ-SRL serial module is used to connect serial devices to your DSR appliance and features two green LEDs: a *POWER* LED and a *STATUS* LED. The *POWER* LED indicates that the attached computer is powered. The *STATUS* LED indicates that a valid UTP connection has been made to a DSR appliance. The DSRIQ-SRL prevents a serial break from the attached device if the module loses power. However, a user can generate a serial break with the attached device by pressing Alt-B in the Terminal Applications menu.

Setting up your network

The DSR system uses IP addresses to uniquely identify the server running DSAuth, the DSR appliances and the computers running DSView. The DSR supports both BootP (a subset of DHCP) and static IP addressing. Avocent recommends that IP addresses be reserved for each appliance and that they remain static while the DSR appliances are connected to the network. For additional information on how the DSR uses the TCP protocol, see *Appendix B* of the DSView Installer/User Guide. Figure 2.1 shows the DSR in a network configuration.

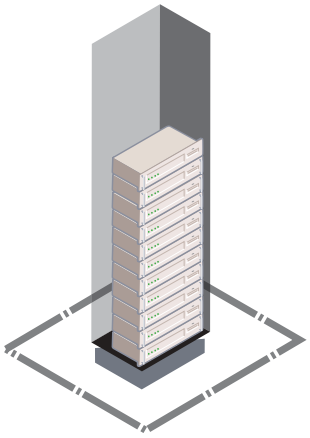

Figure 2.1: The DSR in a Network Configuration

Installing the DSR Appliance

The following diagram illustrates one possible configuration for your DSR appliance. Follow the detailed instructions to successfully install your DSR appliance.

To add a legacy KVM switch:

1. Mount the legacy KVM switch into your rack cabinet. Locate a length of CAT 5 cabling to connect your DSR to the DSRIQ module for your legacy KVM switch.
2. Attach one end of the CAT 5 cabling to the RJ-45 connector on the DSRIQ module.
3. Connect the other end of the CAT 5 cable to a port on the back of your DSR appliance.
4. Attach the keyboard, monitor and mouse connectors of the DSRIQ module to a user port on your legacy KVM switch.
5. Connect the servers to your legacy KVM switch according to the instructions included with the device.
6. Power cycle the legacy KVM switch to enable the cascade code.
7. Repeat steps 2-6 for all legacy KVM switches you want to attach to your system as cascading switches.

To connect and power up your DSR:

1. Connect your network cable from the LAN port on the rear of the DSR to your network.
2. Power up all attached systems.

To install your DSR software:

See the *DSView Installer/User Guide* that ships with your software.

NOTE: Your software registration key will be necessary for installing the DSAuth software used with your DSR appliance. Internet Explorer 5.0 or higher and Java Runtime Environment JRE 1.4.[X] must also be installed to use the DSWebview components of the DSView software.

3 Local Port Operation

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Chapter 3: Local Port Operation

Controlling Your System at the Local Port

All DSR models include a local port on the back of the appliance. This port allows you to connect a keyboard, monitor and mouse to the appliance for direct access. The DSR uses OSCAR®, Avocent's On-Screen Configuration and Activity Reporting interface, which has intuitive menus to configure your system and select computers. Computers can be identified by name or number, allowing you to customize server names.

Viewing and Selecting Ports and Servers

Use the Main dialog box to view, configure and control servers in the DSR system. You may view your servers by name, port or by the unique Electronic ID number (EID) embedded in each DSRIQ. You will see an OSCAR-generated port list by default when you first launch OSCAR.

The Port column indicates the ARI port to which a server is connected. If you connect a legacy KVM switch to the DSR appliance, the port numbering displays the ARI port first, then the switch port to which the server is connected. For example, in Figure 3.1, all the servers except Darrell and Ebert are connected to legacy switches.

To access the Main dialog box:

Press Print Screen to launch OSCAR. The Main dialog box will appear.

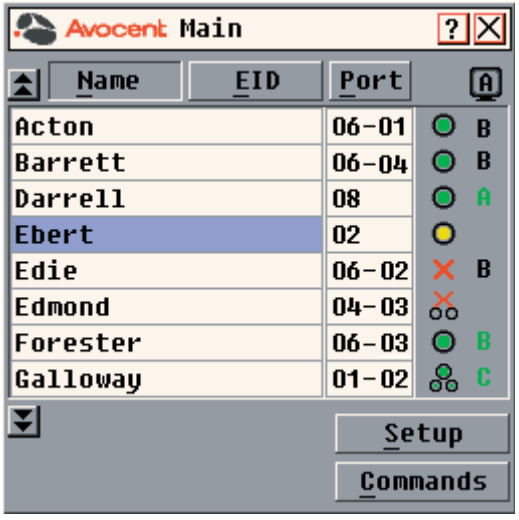


Figure 3.1: Main Dialog Box

Viewing the status of your DSR system

The status of servers in your system is indicated in the far right columns of the Main dialog box. The following table describes the status symbols.

OSCAR Status Symbols

Symbol	Description
	(green circle) Server connected, powered up and the DSRIQ is online.
	Connected server is powered down or is not operating properly and the DSRIQ is offline.
	Connected switch is online.
	Connected switch is offline or not operating properly.
	(yellow circle) The designated DSRIQ module is being upgraded. When this symbol displays, do not cycle power to the DSR appliance or connected servers and do not disconnect DSRIQ modules. Doing so may render the module permanently inoperable and require the DSRIQ to be returned to the factory for repair.
	(green letter) DSRIQ is being accessed by the indicated user channel.
	(black letter) DSRIQ is blocked by the indicated user channel. For instance, in Figure 3.1, user B is viewing Forester, but is blocking access to Acton, Barrett and Edie which are connected to the same DSRIQ.

Selecting servers and serial devices

Use the Main dialog box to select servers and serial devices. When you select a server or serial device, the DSR reconfigures the keyboard and mouse to the settings for the selected server or serial device.

To select servers or serial devices:

Double-click the server or serial device name, EID or port number.

—or—

If the display order of your list is by port (*Port* button is depressed), type the port number and press Enter .

—or—

If the display order of your list is by name or EID (*Name* or *EID* button is depressed), type the first few letters of the name of the server or serial device, or the EID number to establish it as unique, and press Enter .

To select the previous server or serial device:

Press Print Screen and then Backspace . This key combination toggles you between the previous and current connections.

To disconnect from a server or serial device:

Press Print Screen and then Alt + −. This leaves the user in a free state, with no server or serial device selected. The status flag on your desktop displays *Free*.

Soft switching

Soft switching is the ability to switch servers using a hotkey sequence. You can soft switch to a server by pressing Print Screen and then typing the first few characters of its name or number. If you have set a Screen Delay Time and you press the key sequences before that time has elapsed, OSCAR will not display.

To conPgure servers for soft switching:

1. Press Print Screen to launch OSCAR. The Main dialog box appears.
2. Click *Setup - Menu*. The Menu dialog box appears.
3. For Screen Delay Time, type the number of seconds of delay desired before the Main dialog box is displayed after Print Screen is pressed.
4. Click *OK*.

To soft switch to a server:

1. To select a server, press Print Screen . If the display order of your server list is by port (*Port* button is depressed), type the port number and press Enter .
   —or—
   If the display order of your server list is by name (*Name* button is depressed), type the rst few letters of the name of the server to establish it as unique, and press Enter .
2. To switch back to the previous server, press Print Screen then Backspace .

Navigating OSCAR

This table describes how to navigate OSCAR using the keyboard and mouse.

OSCAR Navigation Basics

This Keystroke	Does This
Print Screen	Opens OSCAR. Press Print Screen twice to send the Print Screen keystroke to the currently selected DSRIQ module.
F1	Opens the Help screen for the current dialog box.

OSCAR Navigation Basics (continued)

This Keystroke	Does This
Escape	Closes the current dialog box without saving changes and returns to the previous one. If the Main dialog box is displayed, pressing Escape closes OSCAR and displays a status flag if status flags are enabled. See *Controlling the Status Flag* in this chapter for more information. In a message box, it closes the pop-up box and returns to the current dialog box.
Alt	Opens dialog boxes, selects or checks options and executes actions when used with underlined or other designated letters.
Alt+X	Closes current dialog box and returns to previous one.
Alt+O	Selects the *OK* button, then returns to the previous dialog box.
Enter	Completes a switch operation in the Main dialog box and exits OSCAR.
Single-click, Enter	In a text box, it selects the text for editing and enables the Left and Right Arrow keys to move the cursor. Press Enter again to quit the edit mode.
Print Screen, Backspace	Toggles back to previous selection.
Print Screen, Alt+¯	Immediately disengages user from a server; no server is selected. Status flag displays *Free*. (This only applies to the ¯ on the keyboard and not the keypad.)
Print Screen, Pause	Immediately turns on screen saver mode and prevents access to that specific console, if it is password protected.
Up/Down Arrows	Moves the cursor from line to line in lists.
Right/Left Arrows	Moves the cursor between columns. When editing a text box, these keys move the cursor within the column.
Page Up/Page Down	Pages up and down through Name and Port lists and Help pages.
Home/End	Moves the cursor to the top or bottom of a list.
Backspace	Erases characters in a text box.
Delete	Deletes current selection in the scan list or characters in a text box.
Shift-Del	Deletes from the current selection to the end of the list when editing a scan list.
Numbers	Type from the keyboard or keypad.
Caps Lock	Disabled. Use the Shift key to change case.

Configuring OSCAR

You can configure your DSR system from the Setup menu within OSCAR. Select the *Names* button when initially setting up your DSR system to identify servers by unique names. Select the other setup features to manage routine tasks for your servers from the OSCAR menu.

Setup Features to ConÞ gure OSCAR

Feature	Purpose
Menu	Change the server list between numerical by port or EID number and alphabetical by name
	Change the Screen Delay Time before OSCAR displays after pressing Print Screen
Flag	Change display, timing, color or location of the status flag
Broadcast	Simultaneously send mouse movements and keystrokes to multiple servers
Scan	Set up a custom scan pattern for up to 16 servers
Security	Set passwords to protect or restrict server access
	Enable the screen saver
Keyboard	Set the keyboard country code to send to Sun servers
Devices	Identify the appropriate number of ports on an attached cascade switch
Names	Identify servers by unique names

To access the Setup menu:

1. Press Print Screen to launch OSCAR. The Main dialog box appears.
2. Click *Setup*. The Setup dialog box appears.

Figure 3.2: Setup Dialog Box

Assigning server or serial device names

Use the Names dialog box to identify servers or serial devices by name rather than by port number. The Names list is always sorted by port order. You can toggle between displaying th e name or the EID number of each DSRIQ, so even if you move the module/server/serial devi ce to another ARI port, th e name and configuration will be recognized by the appliance.

NOTE: If a server is turned off, its respective DSRIQ will not appear in the Names list.

To access the Names dialog box:

1. If OSCAR is not open, press Print Screen . The Main dialog box appears.
2. Click *Setup - Names*. The Names dialog box appears.

Figure 3.3: Names Dialog Box

NOTE: If new DSRIQ modules are discovered by the DSR, the on-screen list will be automatically updated. The mouse cursor will change into an hourglass during the update. No mouse or keyboard input will be accepted until the list update is complete.

To assign names to servers or serial devices:

1. In the Names dialog box, select a server or serial device name or port number and click *Modify*. The Name Modify dialog box appears.

Figure 3.4: Name Modify Dialog Box

2. Type a name in the New Name box. Names of servers or serial devices may be up to 15 characters lo ng. Legal characters include: A-Z, a-z, Ø-9, space and hyphen.
3. Click *OK* to transfer the new name to the Names dialog box. Your selection is not saved until you click *OK* in the Names dialog box.
4. Repeat steps 1-3 for each server or serial device in the system.
5. Click *OK* in the Names dialog box to save your changes.
   —or—
   Click *X* or press Escape to exit the dialog box without saving changes.

NOTE: If a DSRIQ has not been assigned a name, a combination of the EID and port is used as the default name.

To list servers alphabetically by name:

Press Alt+N or click *Name* in the Main dialog box.

Assigning Device Types

While the appliance automatically discovers cascade switches attached to your appliance, you will need to specify the number of ports on the cascade switch through the Devices dialog box. You will see an Sw-4, Sw-6, Sw-8, Sw-16 or Sw-24 appear in the Type category for the cascade switch. Select the switch from the list and the Modify button appears, allowing you to assign the appropriate number of ports to it.

To access the Devices dialog box:

1. If OSCAR is not open, press Print Screen . The Main dialog box will appear.
2. Click *Setup - Devices*. The Devices dialog box appears.

NOTE: The Modify button will only be available if a configurable switch is selected.

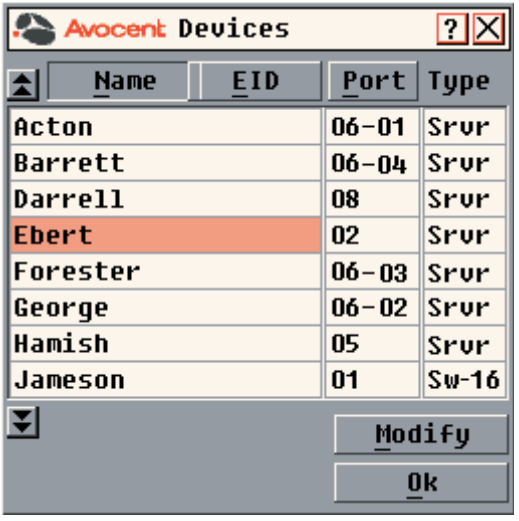


Figure 3.5: Devices Dialog Box

When the DSR discovers a cascade switch, you will notice the numbering format change from being an ARI port only to [ARI port]-[switch port] to accommodate each server under that switch.

For example, if a switch is connected to ARI port 6, each server connected to it would be numbered sequentially. The server using ARI port 6, switch port 1 would be 06-01, the server using ARI port 6, switch port 2 would be 06-02 and so on.

To assign a device type:

1. In the Devices dialog box, select the desired port number.
2. Click *Modify*. The Device Modify dialog box appears.

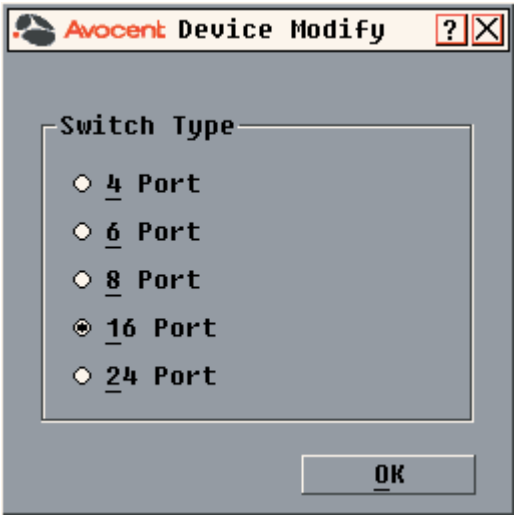


Figure 3.6: Device Modify Dialog Box

3. Choose the number of ports supported by your switch and click *OK*.
4. Repeat steps 1–3 for each port requiring a device type to be assigned.
5. Click *OK* in the Devices dialog box to save settings.

NOTE: Changes made in the Device Modify dialog box are not saved until you click *OK* in the Devices dialog box.

Changing the Display Behavior

Use the Menu dialog box to change the display order of servers and set a Screen Delay Time for OSCAR. The display order setting alters how servers will display in several screens including the Main, Devices and Broadcast dialog boxes.

To access the Menu dialog box:

1. Press Print Screen to launch OSCAR. The Main dialog box appears.
2. Click *Setup - Menu* in the Main dialog box. The Menu dialog box appears (see *Figure 3.7*).

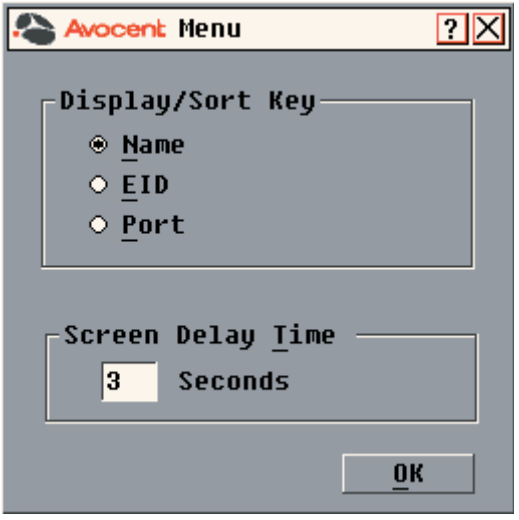


Figure 3.7: Menu Dialog Box

To choose the display order of servers:

1. Select *Name* to display servers alphabetically by name.
   —or—
   Select *EID* to display servers numerically by EID number.
   —or—
   Select *Port* to display servers numerically by port number.
2. Click *OK*.

Depending on the display method selected, the corresponding button will be depressed in the Main dialog box.

To set a Screen Delay Time for OSCAR:

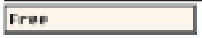
1. Type in the number of seconds (Ø-9) to delay OSCAR display after you press Print Screen . Entering ¯ will instantly launch OSCAR with no delay.
2. Click *OK*.

Setting a Screen Delay Time allows you to complete a soft switch without OSCAR displaying. To perform a soft switch, see *Soft switching* in this chapter.

Controlling the Status Flag

The status flag displays on your desktop and shows the name or EID number of the selected server or the status of the selected port. Use the Flag dialog box to con gure the ag to display by server name or EID number, or to change the ag color, opacity, display time and location on the desktop.

OSCAR Status Flags

Flag	Description
	Flag type by name
	Flag type by EID number
	Flag indicating that the user has been disconnected from all systems
	Flag indicating that broadcast mode is enabled

To access the Flag dialog box:

1. If OSCAR is not open, press Print Screen . The Main dialog box will appear.
2. Click *Setup - Flag*. The Flag dialog box appears.

Figure 3.8: Flag Dialog Box

To determine how the status ß ag is displayed:

1. Select *Name* or *EID* to determine what information will be displayed.
2. Select *Displayed* to show the ag all the time or select *Timed* to display the ag for only ve seconds after switching.

3. Select a flag color in *Display Color*. The following flag colors are available:
   - *Flag 1* - Grey flag with black text
   - *Flag 2* - White flag with red text
   - *Flag 3* - White flag with blue text
   - *Flag 4* - White flag with violet text
4. In Display Mode, select *Opaque* for a solid color flag or select *Transparent* to see the desktop through the flag.
5. To position the status flag on the desktop:
   a. Click *Set Position* to gain access to the Position Flag screen.

Figure 3.9: Position Flag

   b. Left-click on the title bar and drag to the desired location.
   c. Right-click to return to the Flag dialog box.

NOTE: Changes made to the flag position are not saved until you click *OK* in the Flag dialog box.

6. Click *OK* to save settings.
   —or—
   Click *X* to exit without saving changes.

Broadcasting to Servers

The local user can simultaneously control multiple servers in a system, to ensure that all selected servers receive identical input. You can choose to broadcast keystrokes and/or mouse movements independently.

NOTE: You can broadcast to as many as 16 servers at a time, one server per ARI port.

To access the Broadcast dialog box:

1. If OSCAR is not open, press Print Screen . The Main dialog box will appear.
2. Click *Setup - Broadcast*. The Broadcast dialog box appears.

Figure 3.10: Broadcast Dialog Box

NOTE: Broadcasting Keystrokes - The keyboard state must be identical for all servers receiving a broadcast to interpret keystrokes identically. Specifically, the Caps Lock and Num Lock modes must be the same on all keyboards. While the appliance attempts to send keystrokes to the selected servers simultaneously, some servers may inhibit and thereby delay the transmission.

Broadcasting Mouse Movements - For the mouse to work accurately, all systems must have identical mouse drivers, desktops (such as identically placed icons) and video resolutions. In addition, the mouse must be in exactly the same place on all screens. Because these conditions are extremely difficult to achieve, broadcasting mouse movements to multiple systems may have unpredictable results.

To broadcast to selected servers:

1. From the Broadcast dialog box, select the mouse and/or keyboard checkboxes for the servers that are to receive the broadcast commands.
   -or-
   Press the Up or Down Arrow keys to move the cursor to the target server. Then press Alt+K to select the keyboard checkbox and/or Alt+M to select the mouse checkbox. Repeat for additional servers.
2. Click *OK* to save the settings and return to the Setup dialog box. Click *X* or press Escape to return to the Main dialog box.
3. Click *Commands*. The Commands dialog box appears.
4. Click the *Broadcast Enable* checkbox to activate broadcasting.
5. From the user station, type the information and/or perform the mouse movements you want to broadcast.

To turn broadcasting off:

From the Commands dialog box, clear the *Broadcast Enable* checkbox.

Using Scan Mode

In scan mode, the DSR appliance automatically scans from port to port (server to server). You can scan up to 16 servers, specifying which servers to scan and the number of seconds that each server will display. The scanning order is determined by placement of the server in the list. The list is always shown in scanning order. You can, however, choose to display the server's name or EID number by pressing the appropriate button.

NOTE: Scanning is only available to the local user.

To add servers to the scan list:

1. If OSCAR is not open, press Print Screen . The Main dialog box will appear.
2. Click *Setup - Scan*. The Scan dialog box appears.

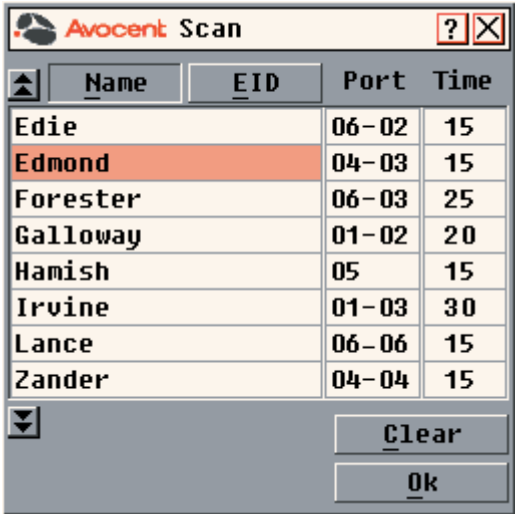


Figure 3.11: Scan Dialog Box

3. Determine the order within the list to add the server. If there are no servers in the scan list, your cursor will appear in a blank line at the top of the list.
   -or-
   To add a server to the end of the list, place your cursor in the last server entry and press the Down Arrow key.

-or-

To add a server in the midst of an existing list, place your cursor in the line below where you want to insert a new server and press Insert .

4. Type the first few characters of a server name or port number to scan. The first matching server will appear in the line.

   -or-

   To move through the list, press the following keyboard commands in the Name, Port or Time column to move through the list of servers available to scan.

   a. Press Alt+Down Arrow to move the cursor down through the list of servers.
   b. Press Alt+Up Arrow to move the cursor up through the list of servers.
   c. Press Alt+Home to move the cursor to the first server in the list.
   d. Press Alt+End to move the cursor to the last server in the list.

5. In the Time column, type the number of seconds (from 3-255) of desired time before the scan moves to the next server in the sequence.

6. Move the cursor to the next line or press Down Arrow and repeat steps 2-5 for each of the remaining servers to be included in the scan pattern.

7. Click *OK*.

To remove a server from the scan list:

1. In the Scan dialog box, click the server to be removed.

2. Press Delete .

   -or-

   Press Shift+Delete to remove the selected server and all entries below it.

3. Click *OK*.

To start the scan mode:

1. If OSCAR is not open, press Print Screen. The Main dialog box will appear.

2. Click *Commands*. The Commands dialog box appears.

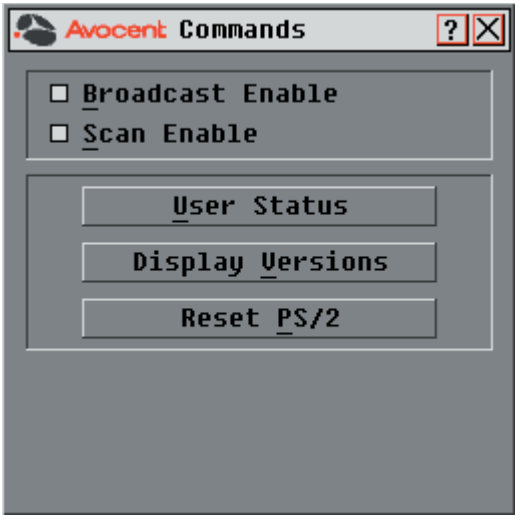


Figure 3.12: Commands Dialog Box

3. Select *Scan Enable* in the Commands dialog box.
4. Click *X* to close the Commands dialog box.

NOTE: Scanning will begin as soon as the scan button is checked.

To cancel scan mode:

1. Select a server if OSCAR is open.
   -or-
   Move the mouse or press any key on the keyboard if OSCAR is not open. Scanning will stop at the currently selected server.
   -or-
   If OSCAR is not open, press Print Screen. The Main dialog box will appear.
2. Click *Commands*. The Commands dialog box appears.
3. Clear *Scan Enable*.

Setting Console Security

Use the Security dialog box to set security on your local port console. You can establish a screen saver mode that engages after your console remains unused for a specified Inactivity Time. Once engaged, your console will remain locked until you press any key or move the mouse. You will then need to type in your password to continue.

Use the Security dialog box to lock your console with password protection, set or change your password and enable the screen saver.

NOTE: If a password has been previously set, you will have to enter the password before you can access the Security dialog box.

To access the Security dialog box:

1. If OSCAR is not open, press Print Screen . The Main dialog box will appear.
2. Click *Setup - Security*. The Security dialog box appears.

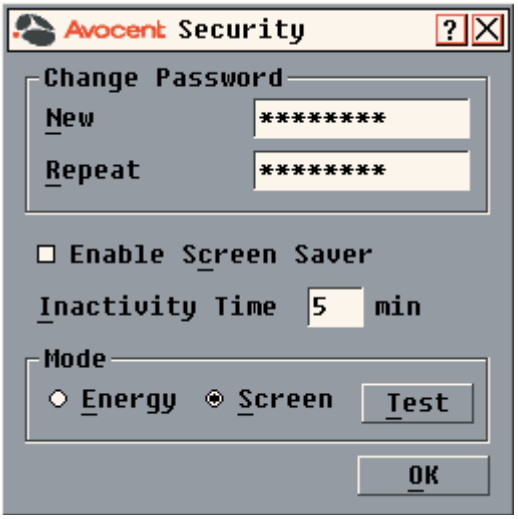


Figure 3.13: Security Dialog Box

To set or change the password:

1. Single-click and press Enter or double-click in the New text box.
2. Type the new password in the New text box and press Enter . Passwords must contain both alpha and numeric characters, are case sensitive and may be up to 12 characters long. Legal characters are: A-Z, a-z, Ø-9, space and hyphen.
3. In the Repeat box, type the password again and press Enter .
4. Click *OK* to change only your password, and then close the dialog box.

NOTE: If you should lose or forget your password, you will need to return your switch to have it reset to the factory default settings. See *Appendix F: Technical Support* for contact information.

To password protect your console:

1. Set your password as described in the previous procedure.
2. Select *Enable Screen Saver*.

3. Type the number of minutes for Inactivity Time (from 1-99) to delay activation of password protection and the screen saver feature.
4. For Mode, select *Energy* if your monitor is ENERGY STAR® compliant; otherwise select *Screen*.

CAUTION: Monitor damage can result from the use of Energy mode with monitors not compliant with ENERGY STAR®.

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5. (Optional) Click *Test* to activate the screen saver test which lasts 10 seconds then returns you to the Security dialog box.
6. Click *OK*.

To log in to your console:

1. Press any key or move the mouse.
2. The Password dialog box appears. Type your password, and then click *OK*.
3. The Main dialog box appears if the password was entered correctly.

To remove password protection from your console:

1. From the Main dialog box, click *Setup - Security*; the Password dialog box appears. Type your password, and then click *OK*.
2. In the Security dialog box, single-click and press Enter or double-click in the New box. Leave the box blank. Press Enter.
3. Single-click and press Enter or double-click in the Repeat box. Leave the box blank. Press Enter.
4. Click *OK* to eliminate your password.

To enable the screen saver mode with no password protection:

1. If your console does not require a password to gain access to the Security box, go to step 2.
   —or—
   If your console is password protected, see the previous procedure, then go to step 2.
2. Select *Enable Screen Saver*.
3. Type the number of minutes for Inactivity Time (from 1–99) to delay activation of the screen saver.
4. Choose *Energy* if your monitor is ENERGY STAR compliant; otherwise select *Screen*.

CAUTION: Monitor damage can result from the use of Energy Mode with monitors not compliant with ENERGY STAR®.

5. (Optional) Click *Test* to activate the screen saver test which lasts 10 seconds then returns you to the Security dialog box.
6. Click *OK*.

NOTE: Activation of the screen saver mode disconnects the user from a server; no server is selected. The status flag displays *Free*.

To exit the screen saver mode:

Press any key or move your mouse. Any previous server connection will be restored.

To turn off the screen saver:

1. In the Security dialog box, clear *Enable Screen Saver*.
2. Click *OK*.

To immediately turn on the screen saver:

Press Print Screen , then press Pause . This command only works when the user is connected to a server.

Setting the Keyboard Country Code

NOTE: Using a keyboard code that supports a language different from that of your DSR firmware will cause incorrect keyboard mapping.

Sun servers may use key mappings for foreign keyboards. By default, DS appliances send the US keyboard country code to Sun and USB modules attached to servers, and the code is applied to the servers when they are powered up or rebooted. Codes are then stored in the DSRIQ.

Issues may arise when you use the US keyboard country code with a keyboard of another country. For example, the Z key on a US keyboard is in the same location as the Y key on a German keyboard. Sun servers will interpret pressing the **Y** key on a German keyboard as pressing the **Z** key when the US keyboard country code is used.

The Keyboard command enables you to send a different keyboard country code than the default US setting. The specified country code is sent to all servers attached to the DS appliance when they are powered up or rebooted, and the new code is stored in the DSRIQ.

NOTE: If a DSRIQ is moved to a different server, the keyboard country code will need to be reset.

See *Appendix E* for information on emulating certain Sun keys using a PS/2 keyboard and special considerations for Japanese and Korean Sun USB keyboards.

NOTE: Only local users can view or change keyboard country code settings.

To set the keyboard country code for Sun servers:

1. If OSCAR is not open, press Print Screen . The Main dialog box will appear.
2. Click *Setup - Keyboard*. The Keyboard dialog box appears.

Figure 3.14: Keyboard Dialog Box

3. Select a country code and click *OK*.
4. Reboot the Sun servers. After rebooting, each Sun server will request the country code setting stored in the DSRIQ.

NOTE: If you wish to reboot the servers by power-cycling them, you must wait 90 seconds before rebooting. A soft reboot may be performed without waiting 90 seconds.

Managing Server Tasks Using OSCAR

From the OSCAR Commands menu, you can manage your DSR system and user connections, engage the scan and broadcast modes and update your firmware.

Commands to Manage Routine Tasks for Your Servers

Feature	Purpose
Broadcast Enable	Begin broadcasting to your servers. Configure a server list for broadcasting under the Setup dialog box.
Scan Enable	Begin scanning your servers. Set up a server list for scanning in the Setup dialog box.
User Status	View and disconnect users.
Reset PS/2	Re-establish operation of PS/2 keyboard and mouse.
Display Versions	View version information for the DSR appliance as well as view and upgrade firmware for individual DSRIQ modules.

To access the Commands menu:

1. Press Print Screen to launch OSCAR. The Main dialog box appears.
2. Click *Commands*. The Commands dialog box appears.

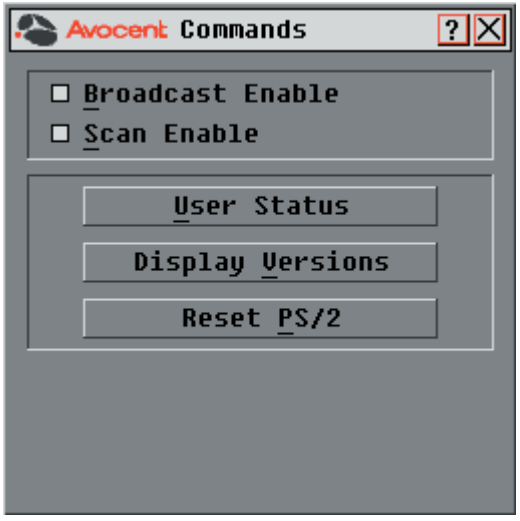

Figure 3.15: Commands Dialog Box

Viewing and Disconnecting User Connections

You can view and disconnect users through the User Status dialog box. The username (U) will always be displayed; however, you can display either the server name or EID number to which a user is connected. If there is no user currently connected to a channel, the user field will be blank and the server field will display *Free*.

To view current user connections:

1. If OSCAR is not open, press Print Screen . The Main dialog box will appear.
2. Click *Commands - User Status*. The User Status dialog box appears.

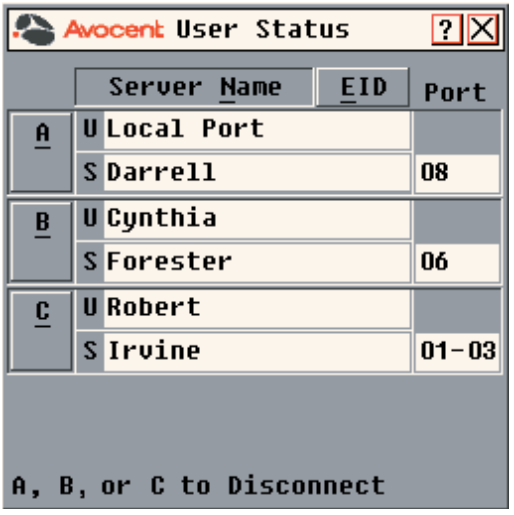

Figure 3.16: User Status Dialog Box

To disconnect a user:

1. If OSCAR is not open, press Print Screen . The Main dialog box will appear.
2. Click *Commands - User Status*. The User Status dialog box appears.
3. Click the letter corresponding to the user to disconnect. The Disconnect dialog box will appear.

Figure 3.17: Disconnect Dialog Box

4. Click *OK* to disconnect the user and return to the User Status dialog box.
   -or-
   Click *X* or press Escape to exit the dialog box without disconnecting a user.

NOTE: If the User Status list has changed since it was last displayed, the mouse cursor will turn into an hourglass as the list is automatically updated. No mouse or keyboard input will be accepted until the list update is complete.

Resetting Your PS/2 Keyboard and Mouse

If your PS/2 keyboa rd or mous e locks up, you may be able to re-establish operation of these peripherals by issuing a reset command. The reset command send s a hot-plug sequence to the server which causes the mouse and keyboard settings to be sent to the DSR. With communication re-established between th e server and the DSR, functionality is restored to the user.

NOTE: This function is for Microsoft Windows-based computers only. Resetting the PS/2 on a computer running any other operating system may require that you reboot that computer.

To reset the PS/2 mouse and keyboard values:

1. If OSCAR is not open, press Print Screen . The Main dialog box will appear.
2. Click *Commands - Reset PS/2*. A message box displays requesting that you con rm the reset. Click *OK*.
   a. A message appears indicating that the mouse and keyboard have been reset.

b. Click *X* to close the message box.
-or-
Click *X* or press Escape to exit without sending a reset command to the PS/2 mouse and keyboard.

Displaying Version Information

OSCAR enables you to display the version number of the DSR firmware and any auxiliary devices connected to the DSR, as well as display keyboard and mouse information for the currently selected server.

This information facilitates system troubleshooting and support. For optimum performance, keep your firmware current.

To display version information:

1. If OSCAR is not open, press Print Screen . The Main dialog box will appear.
2. Click *Commands - Display Versions*. The Version dialog box appears. The top half of the box lists the subsystem versions in the DSR.

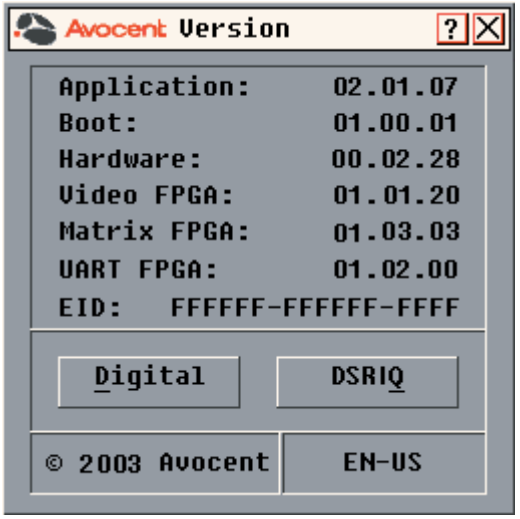

Figure 3.18: Version Dialog Box

3. Click *Digital* to view the Digitizer appliance rmware versions. The Digital Version dialog box appears. The top section identi es the Digitizer subsystem versions. The center section identi es the current network settings. Click *X* or press Escape to return to the Version dialog box.

Figure 3.19: Digital Version Dialog Box

4. Click *DSRIQ* (see *Figure 3.18*) to view individual DSRIQ version information. The DSRIQ Selection dialog box appears.

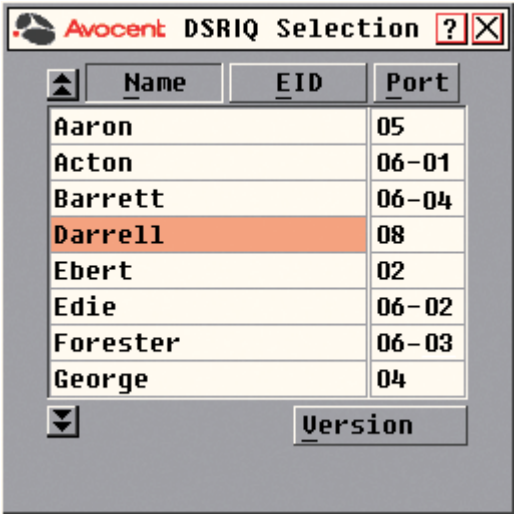

Figure 3.20: DSRIQ Selection Dialog Box

5. Select a DSRIQ to view and click the *Version* button. The DSRIQ Version dialog box appears. For more information on loading rmware, see *Appendix A*.

Figure 3.21: DSRIQ Version Dialog Box

6. Click *X* to close the DSRIQ Version dialog box.

4 Terminal Operations

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Chapter 4: Terminal Operations

Accessing the Terminal Applications Menu

Each individual DSR may be configured at the appliance level through the Configuration port on the back of the appliance. All terminal commands are accessed through a terminal or PC running terminal emulation software.

To access the Terminal Applications menu:

1. Connect a terminal or PC running terminal emulation software (such as HyperTerminal) to the Configuration port on the back panel of the DSR using the supplied null modem cable. The terminal should be set to 9600 baud, 8 bits, 1 stop bit, no parity and no flow control. The terminal may be connected at any time, even when the appliance is powered.
2. Press any key to access the Main menu.

Terminal Applications menu commands

The Terminal Applications menu of the DSR features nine selections: Network Configuration, Security Configuration, SNMP Configuration, Firmware Management, Enable Debug Messages, Set/Change Password, Restore Factory Defaults, Reset Appliance and Exit. Each is discussed below.

Network Configuration

The DSR appliance is configured for network access through this option. When it is selected, you will have access to the addressing that allows the DSR to be positioned in your network.

Security Configuration

This menu option allows you to configure DSR authentication security. When it is selected, you will be given two menu options: Reset Security Keys (certificates of server running DSAuth) and the connection status of the server running DSAuth.

The DSR operates in one of two modes: All or Secure. This setting is controlled from the Security menu on the DSR console port. In the default All mode, the DSR allows any server running DSAuth to initiate a session between the DSR and DSView. In secure mode, only one specific DSAuth server is allowed to initiate this session; other DSAuth servers are locked out.

NOTE: In secure mode, the ability to select a backup DSAuth server through DSView is eliminated.

When a DSR appliance is added to the database with DSAdmin, the appropriate DSAuth server certificate is added to the DSR automatically. If DSAuthentication cannot contact the DSR to add the certificate, an error message is displayed and the DSR is not added to the database.

When the last reference to a DSR is removed from the database, the DSAuth server certificate is removed from the DSR, which allows the DSR to be moved from one DSAuth server to another. The DSAuth server certificate can also be removed from the Security menu on the DSR console port via the Reset Security Keys option.

When the DSR is in All mode, DSAdmin displays a warning message when the DSR is added to the database, stating that the certificate could not be installed. If you intend to operate in All mode, you may safely ignore this warning. Otherwise, you may wish to change the Security settings on the console port of the DSR.

SNMP ConÞguration

This menu option allows you to enable SNMP and to specify parameters for SNMP operation. The following SNMP parameters may be configured:

- SNMP - Enables or disables SNMP
- Read community name - Speci es the community from which traps will be read
- Write community name - Speci es the community to which traps will be written
- Tr ap community name - Indicates the name of the community containing a trap
- Tr ap destination address (1-4) - Indicates the addresses of up to four trap hosts to which you want to send SNMP traps
- Trap con guration - Displays the SNMP Trap Con guration menu. You may select *Enable All Traps*, *Disable All Traps* or choose to enable or disable any of the following traps:

  Cold Start - No display

  Link Down - Displays the index of the Ethernet interface

  Link Up - Displays the index of the Ethernet interface

  SNMP Authentication Failure - No display

  Reboot Started - Displays the username

  Video Session Started - Displays the user, port and channel number

  Video Session Stopped - Displays the user, port and channel number

Video Session Terminated - Displays the user who terminated the session, the user who was terminated, port and channel number

Local Port Viewing Started - Displays the local port

Local Port Viewing Stopped - Displays the local port

Local Port Viewing Terminated - Displays user who terminated the session and the local port

Image Upgrade Started - Displays the user who initiated the upgrade, the type of image being upgraded and the current and new image versions

DSRIQ Added - Displays the DSRIQ ID and port number

DSRIQ Removed - Displays the DSRIQ ID and port number

Subsystem Upgrade Started - Displays the DSRIQ ID, port number and information on the subsystem being upgraded

Subsystem Restarted - Displays the DSRIQ ID, port number and information on the upgraded subsystem

Screen Resolution Changed - Displays the user, port and channel numbers and the previous and current screen resolutions

When you have configured SNMP, enter ¯ to apply your changes. You will then be asked to confirm and returned to the main SNMP Configuration menu.

NOTE: The DSR supports an SNMP MIB agent that provides read/write access to the MIB-II variables except for the EGP group.

Firmware Management

This menu option allows you to access two commands: FLASH Download and Toggle Boot Firmware. The FLASH Download selection allows you to upgrade your DSR firmware with upgrades available from Avocent. For more information see *Appendix A: FLASH Upgrades*.

CAUTION: Do not cycle power to the DSR appliance or connected servers, and do not disconnect DSRIQ modules during a FLASH upgrade. Doing so may render the module permanently inoperable and require the DSRIQ to be returned to the factory for repair.

Enable Debug Messages

This menu option allows you to configure the DSR to display messages regarding the status of the DSR appliance. Once you select the level of detail you wish to receive, the DSR will begin to display information on your Terminal Screen. When you are finished viewing, press any key to exit this mode.

Set/Change Password

The DSR can be set to a secure mode where the Terminal Applications menu cannot be accessed without first entering a password.

To activate security:

1. Select the *Set/Change Password* menu option. You will be prompted to decide if you wish to continue. Enter a Y.
2. Type a password for this DSR appliance and press Enter. This password may be up to 14 characters long.
3. You will be prompted to re-type the password. Once you complete this step, security will be active and you will not be able to access DSR terminal operations without the password.

To change the password:

1. Select the *Set/Change Password* menu option.
2. You will be prompted to type the old password and a new one.
3. Re-enter the new password to verify.

CAUTION: This password places your DSR terminal in a secure mode. This password should be guarded like any network password and care should be taken to avoid forgetting or misplacing it. There are no means for recovering a lost password.

Restore Factory Defaults

This menu option will restore the Network Configuration, the security configuration and the SNMP Configuration options to the default settings.

Reset Appliance

This menu option allows you to execute a soft reset of the DSR.

Exit

This menu selection will return you to the ready prompt.

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Appendices

Appendix A: FLASH Upgrades

The DSRIQ module is unavailable while an upgrade is in progress. When an upgrade is initiated, any current connection to the server via the DSRIQ module will be terminated. If you are using DSAuth or DSView software, a server experiencing a DSRIQ firmware update may not display, or may display as disconnected. The server will appear normally when the FLASH update is completed.

NOTE: Firmware can also be upgraded using the *File - Update Firmware* command in the DSAdmin software. See the *DSView Installer/User Guide* for more information.

NOTE: During an OSCAR-initiated upgrade, the DSRIQ status indicator in the Main dialog box will be yellow.

The DSR appliance FLASH upgrade feature allows you to update your appliance with the latest firmware available. To perform this update, you will first need a Trivial FTP (TFTP) server. If you do not have a TFTP server, there are several shareware programs that you can download.

Visit http://www.klever.net/kin/pumpkin.html to find a freeware TFTP server.

You can upgrade the firmware using either the Terminal Applications menu or within OSCAR.

CAUTION: Disconnecting a DSRIQ during a firmware update or cycling power will render the module inoperable and require the DSRIQ to be returned to the factory for repair.

To upgrade Þ rmware using the DSR Terminal Applications menu:

1. Visit http://www.avocent.com/support and download the latest FLASH firmware from Avocent. Save the FLASH upgrade file to the appropriate directory on the TFTP server.
2. Connect a terminal or PC running terminal emulation software (such as HyperTerminal) to the Con guration port on the back panel of the DSR using the supplied null modem cable. The terminal should be set to 9600 baud, 8 bits, 1 stop bit, no parity and no ow control.
3. If the DSR is not on, turn it on now. After approximately 10 seconds, press any key to access the Main menu.
4. You will see the Terminal Applications menu with nine options. Select option 4, *Firmware Management*.

NOTE: The current version of your firmware will be displayed on the Firmware Management screen.

5. Select option 1, *FLASH Download*.

6. Enter the IP address of your TFTP server and press Enter.
7. Enter the name of the file that you downloaded from the Avocent site.
8. Confirm the TFTP download by typing a y or yes and pressing Enter.
9. The DSR will verify that the file you downloaded is valid. Next, you will be prompted to confirm the upgrade. Type a y or yes and press Enter to confirm.
10. The DSR will begin the FLASH upgrade process. On-screen indicators will display the upgrade progress. When the upload is complete, the DSR will reset and upgrade the internal subsystems.
11. Once the upgrade is complete, a verification message will appear on screen.

Upgrading the DSRIQ Þ rmware

NOTE: During an OSCAR-initiated upgrade, the DSRIQ status indicator in the Main dialog box will be yellow.

To upgrade DSRIQ Þ rmware individually using OSCAR:

1. If OSCAR is not open, press Print Screen. The Main dialog box will appear.
2. Click *Commands - Display Versions*. The Version dialog box appears.

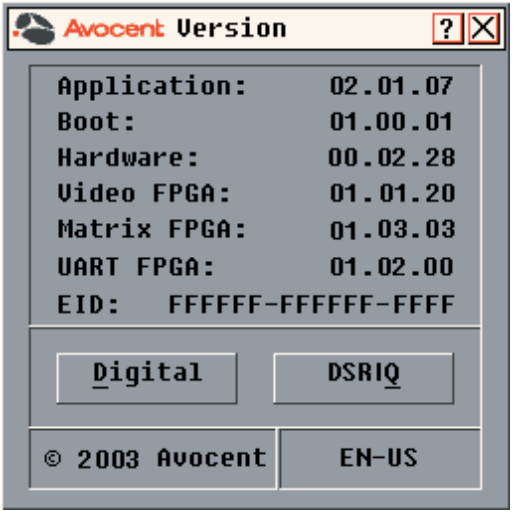

Figure A.1: Version Dialog Box

3. Click *DSRIQ* to view individual cable version information. The DSRIQ Selection dialog box appears.

Figure A.2: DSRIQ Selection Dialog Box

4. Select a DSRIQ to upgrade and click the *Version* button. The DSRIQ Version dialog box appears.

Figure A.3: DSRIQ Version Dialog Box

5. Click the *Load Firmware* button. The DSRIQ Load dialog box appears.